

# A Conceptual Model of Value-Transparency in Supply

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This paper presents a model of how organisations might employ *Value-Transparency* (V-T) as a resource within supply relationships. The model refutes classical models of buyer-supplier relationships which assume a hierarchy wherein customers specify and demand suppliers to conform or acquiesce. V-T is presented as a potent resource for exploiting and expanding the innovative capabilities of inter-organisational working. The selective application of V-T, within a delineated project framework, is proposed as an alternative to the traditional customer-supplier hierarchy and its institution-based processes. It is proposed that V-T might represent a new resource or innovative capability for customers and suppliers.

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**Keywords:** Value-transparency, Innovation, Knowledge, Business case, Champions

## Background

Traditionally, firms have been able, as a core attribute, to control *in-house* the design, delivery and distribution of products or services (see Quinn, 1999). Over the last decade, observers have noted a shift in power from producers to customers in several sectors. The combined effects of globalisation of operations, greatly increased availability of market information (facilitated by the internet, what is termed 'reach' (Erridge, Fee and McIlroy, 1998), and the emergence of 'choice' as a basic customer requirement, have led in mature industries to the demise of the producer-driven, mass production paradigm. Recognition has grown of the need for firms to respond to the emerging market conditions (i.e.

changes in their external selection environment) with technologies that are complex and dynamic. To meet these turbulent conditions firms frequently need to access diverse sets of capabilities and resources that lie beyond their own asset base. As Dyer & Singh, (1998:661) put it, 'Firms who combine resources in unique ways may realize an advantage over competing firms who are unable to do so. Thus, idiosyncratic inter-firm linkage may be a source of relational rents and competitive advantage'. As a result, the competencies and assets held by suppliers of goods, services, materials and components, (or, more accurately, the supply relationships connecting such firms with their customers) have assumed a new significance, presenting an opportunity for firms to access alternative knowledge pools and skill sets.

In the traditional model, in which a firm would develop all its key competencies in-house, supply relationships would be of importance only as the context surrounding the artefact or service provided – probably to a specification laid down by the customer. In the extreme form (characterised by mass production purchasing) such specification would be idiosyncratic and dogmatic, to *commoditize* the items supplied, so that the customer might buy on price alone. As end-markets develop, so formerly distinct technological fields converge and products become increasingly multi-technological (Cantwell and Fai, 1999, Grandstand *et al.*, 1997). Inevitably, given the high costs of gaining and maintaining investments and expertise in many product and service technologies, the in-house or internal capabilities of any one organisation cannot *sustainably* supply all the necessary capabilities. (The emphasis on the *sustainability* of a firm's market offering reflects both the heightened pace and pressure of markets and the conceptual complexity that must be addressed).

Use of concurrent engineering and other time-based strategies differs from a purely 'in-house strategy' in recognising that it is not just the scale but the pace of innovation that promotes collective or combinatorial working (Spanner *et al.*, 1993; Coombs and Metcalfe, 2002). However, if it were the case that accelerating a particular product innovation could sustain competitive advantage, then the in-house model might suffice (i.e. if all a firm has to do is to speed up its internal processes, new product development could be conducted entirely in-house). The first order adaptation of the in-house model would then be selective and limited outsourcing, identifying technologies which might be delegated to other firms on a case-by-case basis. It may also be that the exploitation (and therefore commercial recovery) of technologies in which the firm *does* invest is reliant upon sharing it with others, so that it may be "beneficially exhausted" before it becomes redundant (i.e. technology rents may be redefined in terms of complementary assets or shared competencies).

In fact, the preponderance of technologies and their propensity for short-term exploitation presents a more complex challenge: it is necessary to accelerate development processes in order to meet the necessary and externally driven market timing and to embrace the broad and complex array of technologies that lie beyond the immediate understanding or competence of the firm. To support this, rather than outsourcing from a 'vantage point' (Lamming, 1996), the firm must begin with the assumption that the suppliers whose offerings make up the product or service to be supplied to the end-market have potential and critically important technological inputs to make beyond those associated with current contracts.

Thus, it becomes apparent that to sustain a competitive position firms must collaborate with suppliers in new ways; rather than simply the sources of artefacts, suppliers become sources of knowledge, skills and expertise, or innovation capabilities, in addition to the core offering of artefacts. Within inter-organisational relationships, the process of learning may simply be the exchange of knowledge or it may be a formally co-ordinated process such as a joint venture. Although each firm may still have its own set of firm-specific capabilities, it cannot be assumed that these capabilities are acquired solely through an independent learning process within the firm. What are being considered here are complementary assets (Teece, 1986) or 'cross-firm capabilities' (Coombs and Metcalfe, 2002).

The pre-selection, or scanning, of technological opportunities is influential in determining the level of cooperation that a firm is willing to undertake before commencing with an inter-organisational relationship. Although the market is ultimately the overall selection device, there is a multitude of different actors shaping a firm's technological pathway (regula-

tors, consumers, competitors). However, in order to avoid the risk related to the launch of a new product or process, intra-firm pre-selection and testing procedures still play a fundamental role. Thus, although the firm's external selection environment helps to define technical and economic opportunities, it remains the responsibility of the firm to search, identify and exploit these opportunities (McKelvey, 1997). According to Dosi *et al.* (1990), the firm scans by trial and error as it proposes and selects from all the available alternatives, its final selection being determined first by the firm's internal selection environment, in terms of its competencies, routines and past experiences and, second, by the nature of its external interactions. The lesson here is that for a firm to remain stable and solvent its technological autonomy is essential. Accessing external technologies must be seen as a vital but essentially supportive imperative.

Although, both firms may increase their range of technological opportunities, through expanding their complementary and core knowledge bases (McKelvey, 1997) the parties to a supply relationship must first weigh up the benefits of innovating in isolation against those arising through collective action. Classic studies suggested that firms tended to pursue technologies that related to their existing knowledge bases (Teece, 1988). However, the increasing complexity and diversity of modern technologies suggests that firms may be forced to access new, unrelated knowledge pools (Cavusgil *et al.*, 2003; Spekman *et al.*, 1998; Prahalad, 1998). The fact that a supplier may be in an entirely different sector from that of the customer (e.g. a microelectronics components producer supplying a vehicle assembler, or a caterer supplying an airline) means that the richness of shared selection environments may be immediate and extensive. (The UK's Ministry of Defence Logistics Organisation refers to the result of such overlapping scanning as 'shared working environments'.)

The necessity, and urgency, of leveraging cross-firm capabilities has led to the development of the conceptual model proposed in this paper. So far the paper has proposed that inter-organisational relationships increasingly provide highly creative relationships. These, we define as supply relationships that contain inimitable shared competencies, going well beyond the requirements of extant contracts, which may be redefined in terms of complementary assets or shared competencies. For the customer, this raises the issue of dealing with technology-rich suppliers in a manner that creates a shared asset (e.g. knowledge or way of working) that another customer of that supplier would find difficult to replicate; this is a new perspective for traditional purchasing. However we are not suggesting that technology-creative means 'high technology;' nor does it imply large size or extensive R&D activity. Suppliers may hold quite simple knowledge that can unlock potential in a customer within a creative relationship.

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